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ABSTRACT

An instrument to measure occupational awareness was developed. An occupational awareness inventory was developed in association with efforts in other areas. A pool of 150 items was developed using the "Dictionary of Occupational Titles." Special emphasis was put on the worker traits of occupations. The items were given to a panel of experts to establish content validity. The resulting 64 items of the inventory were separated into two forms of 32 items each and the two were field tested in four areas: rural, urban, suburban, and inner-city. Based on the findings of the initial phase, the remaining items of the two forms were grouped into a final form and a new Occupational Awareness Inventory was field tested. The number of items on the final form is 30. At this point the instrument was turned over to personnel of the Department's Bureau of Educational Quality Assessment for inclusion in their 7th grade test battery. The Occupational Inventory was administered as part of the Educational Quality Assessment package to 2,640 pupils in 90 schools during the fall of 1971. Together with the test battery, information was collected from pupils with respect to several variables: sex, race, type of community, and father's occupation. The Occupational Inventory responses were submitted to an item analysis. The intent of this work is to make available a multi-grade level measure of a pupil's awareness of occupations and his opportunities to move into them. (CK)

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THE DEVELOPMENT AND EVALUATION OF A TEST TO MEASURE OCCUPATIONAL AWARENESS

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Modern theory in guidance and counseling psychology points to the existence of an orderly process of vocational development. Ginzberg, et al (1951) hypothesized a transition from an initial fantasy stage through a tentative stage into a realistic stage in a child's career development. The fantasy stage is early in life ending at the age of 10 to 12. The child moves from a play oriented existence to one that is work oriented. The tentative stage begins the process of narrowing down the occupational choice as the adolescent's interests, abilities and values influence the developmental process. The realistic stage involves exploration, crystallization and finally specification. Many individuals never reach this level of development. Later studies have suggested that the fantasy stage ends earlier (O'Hara, 1959) or may not exist at all (Nelson, 1963). Holland's (1961) work with occupational titles suggests that as an individual develops, he gradually focuses on a particular occupational choice by selectively eliminating occupations based on information he has available. Roe (1957) found that factual data on particular occupations was usually limited and based on a small number of obvious traits. Super (1957) points out that a child evaluates roles in terms of his self-concept during his period of role exploration. Because of this, occupations may be dismissed for various reasons, but usually lack of role compatibility with the self-concept is the principal reason.

Hall (1963) states that such propositions as vocational maturity and development have been viewed as axioms of theorems as opposed to assumptions

to be tested. Crites (1965) has developed the Vocational Development Inventory. This instrument has been constructed to measure vocational maturity in adolescents. The study by O'Hara suggests that the vocational development process is in operation earlier. Nelson concerned himself with occupational information, and his study points up its importance in vocational development. If we interpret the work of these theorists correctly, we can discover the general theme pervading their work. The individual is found to be limiting his occupational choice by selectively eliminating various possible occupations. Elimination of occupations based on inadequate or incorrect information can prove to be very harmful to the individual. Holland suggests that occupational stereotypes are formed only with the information available, regardless of its appropriateness. These stereotypes can then become the basis for rejecting an occupation. If an individual, who has rejected a given occupation, is pressed into reconsidering his decision by circumstances, psychological difficulties may result.

Recent statements by the U.S. Office of Education have called for the development of career education programs. Such programs can provide pupils with the necessary occupational awareness to make effective decisions. This can lead to orderly, problem-free vocational development.

We are also facing a strong movement for educational accountability. The day is past when educators can develop and implement programs without suitable means available for their assessment. Programs in career education cannot be set apart. They must be assessed. This fact led the authors to develop an instrument to measure what we have termed occupational awareness. We see this concept as a knowledge of occupations and their associated worker traits. An occupational awareness inventory was developed in association with efforts in other areas for the State of Pennsylvania's Educational Quality Assessment Project.

Instrument Development

Initial Phase

As a first step, a pool of 150 items was developed. The major source of information was the Dictionary of Occupational Titles (Third Edition, 1965) with special emphasis on the worker traits of occupations. The items were given to a panel of experts to establish content validity. The panel included persons from the Pennsylvania Department of Education, Bureau of Educational Research and Bureau of Pupil Personnel Services; Pennsylvania Department of Labor and Industry; and public school personnel. Incorporating the suggestions of that panel, the item pool was modified and reduced to 64 items. The Fog Index of Readability indicated that the reading level was approximately at the middle 4th grade level with the exception of some technical terms deemed necessary.

First Phase Field Testing

To facilitate testing, the 64 items of the inventory were separated into two forms of 32 items each. This was done to reduce testing time and avoid the problem of the pupils losing interest. The two forms of the Occupational Awareness Inventory were field tested in four areas: rural, urban, suburban and inner-city. A sample of some inner-city schools was taken to insure that the total sample contained a representation of minority pupils.

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Insert Table 1 about here

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Table 1 details the composition of the sample. As the table shows, it was weighted somewhat toward inner-city pupils and females. The sample was further divided into groupings of low ability, average ability and high ability by each area.

Preliminary Results

Of the 64 items on the two forms of the Occupational Awareness Inventory, 30 items were deleted on the following criteria:

1. Low difficulty > 80 per cent right
2. High difficulty < 25 per cent right
3. Item-total score correlation < .30
4. t-value < 3.000 ($p < .01$)

Second Phase Field Testing

Based on the findings of the initial phase, the remaining items of the two forms were grouped into a final form and the new Occupational Awareness Inventory was field tested using a similarly stratified sample as that used in the initial phase.

Second Phase Results

On the basis of this new data, four items were deleted from the test. Three items did not discriminate between low and high scoring groups ($p > .01$). The fourth was deleted because it had a confusing format. The remaining items were perceived by the authors as representative of the original item pool. Information from this round of testing is in Table 2.

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Insert Table 2 about here

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As Table 2 shows, the reliability is reasonably high. There is a substantial range of scores. No floor or ceiling effect has resulted. The number of items on the final form is 30.

At this point the instrument was turned over to personnel of the Department's Bureau of Educational Quality Assessment for inclusion in their 7th grade test battery.

Statewide Testing Results

The Occupational Inventory was administered as part of the Educational Quality Assessment package to 2,640 pupils in 90 schools during the fall of 1971. The schcols involved in this testing were selected to be somewhat representative of Pennsylvania as a whole.

Together with the test battery, information was collected from pupils with respect to several variables. Among these were sex, race, type of community, and father's occupation. Other areas tapped by the test battery included self-concept, citizenship, creative potential, attitude toward differing others and a verbal and math achievement measure.

The Occupational Inventory responses were submitted to an item analysis. Information from that analysis is contained in Table 3, which is constructed like Table 2 to facilitate comparisons.

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Insert Table 3 about here

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Slight decreases in the range can be attributed to the fact that four items were dropped from the second phase test. (The dropping of four items may also have contributed to the slight decline in reliability.) The mean difficulty was higher because the statewide sample included proportionally fewer inner-city students than the field test samples.

The basic unit in the Pennsylvania Quality Education Project is the school mean score. It is important that instruments used in the battery discriminate between schools. For the 90 schools in our sample, test scores ranged from 21.77 to 10.57. Since the total range for the test is only 30 points, this range among school means indicates that the test will discriminate among school buildings effectively.

The test was correlated with the other instruments in the battery. The large number of pupils in the sample allows virtually all of the relations to be significant. In agreement with Nelson's finding, higher achieving pupils tend to score higher on this test. The verbal achievement correlation is .61 and the math achievement correlation is .58. This seems to indicate that the pupil who is occupationally aware, is also intelligent and a good achiever in school. Of the remaining significant relationships, the highest relation is with creative potential (.36). Beyond this, and possibly even with this relation, it seems unreasonable to talk about meaningful relations because the coefficients are so low.

A cursory examination of school means indicates that scores on this test are related to means for father's occupation. This is a weighted figure which we can use as a crude measure of socioeconomic status. Location of residence (large city, rural, suburban, etc.) also seems to relate in that suburban pupils produce higher scores than rural or inner-city pupils. Socioeconomic status and achievement are indicators of vocational development.

Discussion

This paper has described the development of a measure of occupational awareness. A pool of items was developed, using the Dictionary of Occupational Titles as a primary source of information. Content validity was established by having a panel of experts evaluate the items. After two phases of field testing, the final form of the instrument was turned over to the Bureau of Educational Quality Assessment, Pennsylvania Department of Education for inclusion as a measure of Goal VIII of the State's 10 goals of quality education. This goal states that quality education should help every child understand the opportunities open to him for preparing himself for a productive life

and should enable him to take full advantage of these opportunities. Knowledge of occupations and their associated worker traits is an essential factor in a pupil's awareness of these opportunities. The vocationally mature pupil knows about his opportunities and how to take advantage of them.

This measure should serve the dual purpose of providing the State with a measure of this particular goal, and also an assessment of a pupil's level of vocational development. This information can be useful at the state level for planning and at the individual level for counseling. Schools showing low scores might be appropriate settings to introduce career education programs. Pupils with low scores could be targets for vocational counseling.

Present plans for use of the instrument call for two or three validation studies, expansion with slight revisions to 8th and 9th grade, and additional analysis of the fall 1971 data. Another effort will make extensive revisions, while retaining the basic idea, in adapting the instrument for elementary grades. A possible innovation here would be the use of a pictorial format, using either drawings or photographs. Eventually, it is hoped that we will have available a multi-grade level measure of a pupil's awareness of occupations and his opportunities to move into them.

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Table 1

Phase I Sample

	Form I		Form II		Total
	M	F	M	F	
Rural	20	25	18	25	88
Urban	12	14	13	17	56
Suburban	19	20	20	23	82
Inner City	26	24	23	36	109
Total	77	83	74	101	335

Table 2

Second Phase Field Testing Test Information

Number of Items	34
Test Mean	19.020
Standard Deviation	6.270
Test Range	29
Reliability (KR-20)	0.828
Standard Error of Measurement	2.600
Mean Difficulty	0.560
Average Item-Total Score Correlation	0.497

Table 3

Test Information from Statewide Administration

Number of Items	30.000
Test Mean	17.650
Standard Deviation	4.950
Test Range	26.000
Reliability (KR-20)	.769
Standard Error of Measurement	2.380
Mean Difficulty	.588
Average Item-Total Score Correlation	.475